

## III.—On the Hornbills of the Ethiopian Region.

By Captain G. E. SHELLEY, F.Z.S.

*Key to the Genera.*

- a.* Tarsus long, much longer than half the length of the bill, measured from the gape. In adults the sides of the head and upper throat bare, with wattles on the throat ..... 1. *Bucorvus*.
- b.* Tarsus short, not half the length of the bill, measured from the gape.
- b*<sup>1</sup>. Tail square or rounded; less than half the length of the bird.
- b*<sup>2</sup>. Cheeks and a large wattle on the centre of the throat bare ..... 2. *Ceratogymna*.
- c*<sup>2</sup>. Cheeks and throat feathered.
- c*<sup>3</sup>. Bill stouter and not so much compressed at the sides. Generally with a large casque ..... 3. *Buceros*.
- d*<sup>3</sup>. Bill comparatively more slender and much compressed at the sides ..... 4. *Lophoceros*.
- c*<sup>1</sup>. Tail long and strongly graduated; more than half the length of the bird ..... 5. *Berenicornis*.

## 1. BUCORVUS.

1831. *Bucorvus*, Less. *Traité d'Orn.* 1831, Type.
- p. 259 . . . . . *B. abyssinicus*.
1847. *Tmetoceros*, Cab. *Wieg. Arch.* 1847,
- p. 345 . . . . . *B. abyssinicus*.
1849. *Bucorax*, Sundev. *Cefv. K. Vet. Ak.*
- Förh. 1849, p. 161 . . . . . *B. abyssinicus*.

*Key to the Species.*

- a.* Bill with a large pale-coloured patch near the base of the upper mandible. Casque widely opened in front in adult males ..... 1. *B. abyssinicus*.
- b.* Bill entirely black, with no pale-coloured patch near the base of the upper mandible. Casque apparently always closed in front ..... 2. *B. caffer*.

Owing to the great similarity of these species and the want of sufficient specimens, I have been unable satisfactorily to unravel their synonymy. *B. abyssinicus* inhabits North-

east Africa and Senegambia, and probably extends down the west coast, possibly to Angola. *B. caffer* is the only species met with in South Africa, and extends northwards on the east coast, certainly to the Pangani River, and is probably the only one met with south of the equator in East Africa. Upon this supposition, which is not yet proved, I have based my synonymy and distribution.

# 1. BUCORVUS ABYSSINICUS.

*Buceros abyssinicus*, Bodd. Tabl. Pl. Enl. 1783, p. 47 ; Hartl. J. f. O. 1855, p. 361<sup>1</sup>.

*Buceros africanus*, Lath. Ind. Orn. i. 1790, p. 143.

*Buceros brac*, Dumont, Diet. Sc. Nat. vi. 1817, p. 201.

*Tragopan abyssinicus*, Gray, List Gen. B. 1841, p. 65 ; Rüpp. Syst. Uebers. p. 79.

*Bucorax abyssinicus*, Hartl. Orn. W.-Afr. p. 165<sup>2</sup>; id. J. f. O. 1861, p. 261<sup>3</sup>; Monteiro, Ibis, 1862, p. 338<sup>4</sup>; Sharpe, Ibis, 1869, p. 385<sup>5</sup>; Bocage, P. Z. S. 1873, p. 698.

*Tmetoceros abyssinicus*, Cab. & Hein. Mus. Hein. ii. 1860, p. 175 ; F. & H. Vög. Ostaf. p. 480<sup>6</sup> (part.) ; Finsch, Trans. Z. S. vii. p. 279<sup>7</sup>.

*Buceros carunculatus abyssinicus*, Schl. Mus. P.-B. i. *Buceros*, 1862, p. 19.

*Buceros carunculatus guineensis*, Schl. l. c. p. 20 ; Bocage, P. Z. S. 1873, p. 698.

*Bucorvus abyssinicus*, ? Selat. P. Z. S. 1864, p. 111<sup>8</sup>; Blauf. Geol. & Zool. Abyss. p. 330<sup>9</sup>; Antin. & Salvad. Ann. Mus. Civ. Gen. 1873, p. 420<sup>10</sup>; Reichen. J. f. O. 1875, p. 12<sup>11</sup>; Elliot, Monogr. Bucerot. pl. 1 ; Salvad. Ann. Mus. Civ. Gen. 1884, p. 101<sup>12</sup>; Dubois, Bull. Mus. Belg. iii. 1884, p. 221 ; Rochebrune, Faun. Sénégalamb., Ois. p. 113<sup>13</sup>.

*Tmetoceros habbyssinicus*, Heugl. Orn. N.O.-Afr. pp. 731, clvi<sup>14</sup>.

*Bucorvus pyrrhops*, Elliot, Ann. & Mag. Nat. Hist. xx. 1877, p. 171 ; id. Monogr. Bucerot. pl. 2.

*Bucorax guineensis*, Bocage, P. Z. S. 1873, p. 698.

*Bucorvus guineensis*, Rochebrune, Faun. Sénégalamb., Ois. xx. p. 113.

*Bucorvus abyssinicus*, var. *guineensis*, Dubois, Bull. Mus. Belg. iii. 1884, p. 221.

? *Bucorvus caffer*, Rochebrune, Faun. Sénégal, Ois. p. 114.

*Hab.* "Not found by us in Sambar, but met with in the mountains of Bogos and Abyssinia, Takah, throughout the whole of Abyssinia southward to Shoa, in Fazogl, Senar, Kordofan, and the White Nile district, westward as far as the Kosanga River" (*Heuglin*<sup>14</sup>); Gazelle River (*Antinori*<sup>14</sup>); Senafé and Facado in May, Bejook, on the Anseba, July, as low near the coast as Ain in August (*Jesse*<sup>7</sup>). In Abyssinia it is chiefly found at about 4000 feet and up to 7000 or 8000 feet, but is occasionally met with at a lower elevation, as I once saw a bird at Koomali (*Blanford*<sup>9</sup>); Anseba and Keren (*Antinori* & *Beccori*<sup>17</sup>). Shoa, at many localities (*Antinori*<sup>12</sup>); ? Uniuro and Madiland (*Speke*<sup>5</sup>). It crosses to West Africa and is common in Senegambia (*Rochebrune*<sup>15</sup>); Gambia; Bissao, Galam (*Beaudouin*<sup>10</sup>); Fantee (*Ussher*<sup>5</sup>); Accra (*Pel*<sup>12</sup>); Abouri, in the Aguapim mountains (*Shelley* & *Buckley*); Camaroons (*Reichenow*<sup>11</sup>); Pungo Andongo, in Angola (*Monteiro*<sup>4</sup>).—N.B. It is quite possible that the Angolan bird may be *B. caffer*.

## 2. BUCORVUS CAFFER.

*Buceros carunculatus cafer*, Schl. Mus. P.-B. *Buceros*, 1862, p. 20.

*Bucorax abyssinicus*, Gurney (nec Bodd.), Ibis, 1861, p. 132<sup>1</sup>; Kirk, Ibis, 1864, p. 325<sup>2</sup>.

*Bucorvus abyssinicus*, Gurney, Ibis, 1868, p. 162<sup>3</sup>; Ayres, Ibis, 1869, p. 296<sup>4</sup>; Gurney, ed. Anderss. B. Damara Land, p. 205<sup>5</sup>; Shelley, P. Z. S. 1881, p. 591<sup>6</sup>.

*Tmetoceros abyssinicus*, F. & H. Vög. Ostaf. p. 480 (part.); Finsch, Zeitschr. ges. Orn. 1884, p. 361<sup>7</sup>; id. J. f. O. 1885, p. 126<sup>8</sup>; Reichen. J. f. O. 1887, p. 60<sup>9</sup>.

*Bucorax cafer*, Bocage, P. Z. S. 1873, p. 698<sup>10</sup>; id. Orn. Angola, p. 111<sup>11</sup>; Sharpe, ed. Layard's B. S. Afr. pp. 122, 808<sup>12</sup>.

*Bucorvus cafer*, Elliot, Monogr. Bucerot. pl. 3; Shelley, Ibis, 1882, p. 245<sup>13</sup>.

*Buceros abyssinicus*, var. *caffer*, Dubois, Bull. Mus. Belg. iii. 1884, p. 222.

*Hab.* Confined to East and South Africa.

Usequa, Ungu, Ruwana, Mori, Maurui, Bamangwato (*Fischer*<sup>7 8 9</sup>); Usambara Hills near Pangani (*Kirk*<sup>6</sup>, *Shelley Mus.*); Zambesi (*Kirk*<sup>2</sup>); Mashoona<sup>13</sup>, Transvaal (*Ayres*<sup>3 4</sup>); Natal (*Ayres*<sup>1</sup>); Zululand (*Gordge*, *Shelley Mus.*); common on the eastern frontier of Cape Colony (*Layard*); East London (*Richard*<sup>12</sup>); Ondonga and Okavango River (*Andersson*<sup>5</sup>); Quillengues and Humbe, in Mossamedes (*Anchieta*<sup>11</sup>).

## 2. CERATOGYMNA.

1854. *Ceratogymna*, Bp. Consp. Vol. Anisod. Type.

1854, p. 2 . . . . . *C. elata*.

1859. *Sphagolobus*, Cab. Mus. Hein. ii. 1859,

p. 171 . . . . . *C. atrata*.

### Key to the Species.

- a. Tail white, with the two central feathers black. . . . . 3. *C. elata*.
- b. Tail black, with one third of the ends of all but the  
centre feathers white . . . . . 4. *C. atrata*.

## 3. CERATOGYMNA ELATA.

*Buceros elatus*, Temm. Pl. Col. 1830, pl. 521. f. 1; Hartl. J. f. O. 1855, p. 361<sup>1</sup>; id. Orn. W.-Afr. p. 161<sup>2</sup>; Gurney, Ibis, 1859, p. 153<sup>3</sup>; Ussher, 1874, p. 51<sup>4</sup>; Dubois, Bull. Mus. Belg. iii. 1884, p. 198; Büttikofer, Notes Leyden Mus. 1885, p. 204<sup>5</sup>.

*Buceros cultratus*, Sundev. Öfv. Vet.-Ak. Förh. 1849, p. 160, ♀; Hartl. Orn. W.-Afr. p. 161<sup>6</sup>.

*Ceratogymna elata*, Bp. Consp. Vol. Anisod. 1854, p. 2; Elliot, Monogr. Bucerot. pl. 23; Rochebrune, Faun. Sénégal-gamb., Ois. p. 118<sup>7</sup>.

*Hab.* W. Africa: Gaboon (*Verreaux*<sup>6</sup>); St. John's River (*McDowell*<sup>2</sup>); Calabar (*Laurein*<sup>2</sup>); Ibadan (*Hinderer*<sup>3</sup>); Gold Coast (*Pel*<sup>1</sup>); Denkera, forest in the interior (*Ussher*<sup>4</sup>); Liberia (*Büttikofer*<sup>5</sup>); Sierra Leone (*Afzelius*<sup>2</sup>); Casamanse, Gambia, Senegambia (*Rochebrune*<sup>7</sup>).



## 4. CERATOGYMNA ATRATA.

*Buceros atratus*, Temm. Pl. Col. 1830, pl. 558<sup>1</sup>; Hartl. J. f. O. 1855, p. 361<sup>2</sup>; id. Orn. W.-Afr. pp. 162<sup>3</sup>, 274<sup>4</sup>; Cass. Pr. Ac. Philad. 1859, p. 139<sup>5</sup>; Ussher, Ibis, 1874, p. 51<sup>6</sup>; Bocage, Orn. Angola, p. 113<sup>7</sup>; Reichen. J. f. O. 1877, p. 18<sup>8</sup>; Hartl. Abhandl. nat. Ver. Brem. viii. 1882, p. 208<sup>9</sup>; Dubois, Bull. Mus. Belg. iii. 1884, p. 199; Büttikofer, Notes Leyden Mus. 1885, p. 205<sup>10</sup>.

*Buceros poensis*, Fraser, Ann. & Mag. Nat. Hist. 2nd ser. xv. 1855, p. 136, ♀<sup>11</sup>.

*Sphagolobus atratus*, Cab. & Heine, Mus. Hein. ii. 1860, p. 171; Elliot, Monogr. Bucerot. pl. 24; Bouvier, Cat. Ois. Marche &c. 1875, p. 28<sup>12</sup>; Sharpe, Journ. Linn. Soc., Zool. xvii. 1884, p. 436<sup>13</sup>.

*Hab.* W. Africa, from Angola to Liberia, and inland to 5° N. lat. on the White Nile.

Equatorial Africa, near the Bari Negro country, Upper White Nile at Lado (*Emin Pacha*<sup>9</sup>); Semmio in the Nyamnyam country (*Bohndorff*<sup>13</sup>); Cabinda (*Anchieta*) and Cazengo (*Toulson*) in Angola (*Bocage*<sup>7</sup>); Loango Coast (*Falkenstein*<sup>8</sup>); Muni River, Gaboon (*Du Chaillu*<sup>4</sup>); Ogowè River (*Du Chaillu*<sup>5</sup>, *Marche*<sup>12</sup>); Fernando Po (*Fraser*<sup>11</sup>); Calabar (*Laurein*<sup>3</sup>); Gold Coast (*Pel*<sup>2</sup>), Denkeria (*Ussher*<sup>6</sup>), and Ashantee (*Mus. Lugd.*<sup>1</sup>); Liberia (*Büttikofer*<sup>10</sup>).

## 3. BUCEROS.

Type.

1766. *Buceros*, Linn. S. N. i. 1766, p. 153. *B. bicornis*.

1849. *Anthracoceros*, Reichb. Syst. Av. 1849,

pl. 49 . . . . . *B. malabaricus*.

1859. *Bycanistes*, Cab. Mus. Hein. ii. 1859,

p. 171 . . . . . *B. buccinator*.

1878. *Pholidophalus*, Elliot, Monogr. Bu-

cerot. pl. 32 . . . . . *B. fistulator*.

## Key to the Species.

- a. Tail with the two centre feathers entirely black,  
or occasionally with narrow white ends or nar-  
row white bases.

- a*<sup>1</sup>. With no white on the quills. White of abdomen not extending on to the chest . . . . . 5. *B. cristatus*.  
*b*<sup>1</sup>. With portion of the secondaries white. Chest and abdomen white.  
*b*<sup>2</sup>. With no white on the greater wing-coverts.  
*b*<sup>3</sup>. Casque large. With more than half of all the secondaries and tail-feathers black 6. *B. buccinator*.  
*c*<sup>3</sup>. Casque obsolete or rudimentary; bill strongly corrugated.  
*c*<sup>4</sup>. White of secondaries not extending over more than the end-half of the feathers. Basal half of all the tail-feathers black 7. *B. fistulator*.  
*d*<sup>1</sup>. White of secondaries extending to their bases. White of tail variable, according to age, always covering more than the end-half of all but the centre feathers, and in fully adults reaching to the base, or nearly so, of these feathers 8. *B. sharpii*.  
*c*<sup>2</sup>. With broad white ends to the greater coverts; casque strongly developed.  
*d*<sup>3</sup>. Outer primaries entirely black. With a [cus. broad black subbasal band on the tail . . 9. *B. subcylindricus*.  
*e*<sup>3</sup>. The greater part of the outer and the ends of all the primaries white. Tail, with the exception of the two centre feathers, entirely white . . . . . 10. *B. leucopygius*.  
*b*. Entire tail, including the two centre feathers, white, with a broad black central band.  
*f*<sup>1</sup>. With broad white ends to the greater wing-coverts. Black of the chest extending down the front of the thighs . . . . . 11. *B. cylindricus*.  
*g*<sup>2</sup>. With no white ends to the greater wing-coverts. Entire thighs white . . . . . 12. *B. albotibialis*.

# 5. BUCEROS CRISTATUS.

*Buceros cristatus*, Rüpp. N. W. 1835, p. 3, pl. 1<sup>1</sup>; id. Syst. Uebers. p. 79; Cass. Pr. Ac. Philad. 1859, p. 139<sup>2</sup>; Kirk, Ibis, 1864, p. 326<sup>3</sup>; Selat. P. Z. S. 1864, p. 111<sup>4</sup>; F. & H. Vög. Ostaf. p. 482<sup>5</sup>; Heugl. N.O.-Afr. pp. 730, clvi; Fisch. & Reichen. J. f. O. 1880, p. 141<sup>6</sup>; Dubois, Bull. Mus. Belg. iii. 1884, p. 200; Fisch. Zeitschr. ges. Orn. 1884, p. 361<sup>6</sup>; id. J. f. O. 1885, p. 126<sup>6</sup>; Shelley, P. Z. S. 1885, p. 224<sup>7</sup>; Reichen. J. f. O. 1887, p. 60<sup>8</sup>.

*Bycanistes cristatus*, Cab. Mus. Hein. ii. p. 172, note; Cab. V. d. Decken's Reis. iii. p. 38<sup>9</sup>; Elliot, Monogr. Bucerot. pl. 26; Shelley, P. Z. S. 1881, p. 519<sup>10</sup>; Salvad. Ann. Mus. Civ. Gen. 1884, p. 102<sup>11</sup>; Rochebrune, Faun. Sénégalamb., Ois. p. 118<sup>12</sup>.

*Hab.* East Africa from Abyssinia to the Zambesi and Senegambia, according to M. Rochebrune, where, however, it is not common. The records of its occurrence on the Camma River, in Gaboon, and in Natal require additional confirmation.

Southern parts of Lake Tana (*Rüppell*<sup>1</sup>); Shoa (*Antinori*<sup>11</sup>); Uganda (*Speke*<sup>1</sup>); throughout Masai-land, at Kilimanjaro (*H. H. Johnston*<sup>7</sup>); Schadel, Gt. Arusha Lake, Mkarama, Masinde, Nguru Mountain, Msingissia (*Fischer*<sup>6 8</sup>); Usambara (*Kirk*<sup>10</sup>); Shiré and Zambesi Rivers (*Kirk*<sup>3</sup>, *Brit. Mus.*); Bakel, Kita, and the forests of Bakoy and Falémé (*Rochebrune*<sup>12</sup>); ? Camma River (*Du Chaillu*<sup>2</sup>); ? Natal (*Mus. Kirckhoff*<sup>5</sup>).

#### 6. BUCEROS BUCCINATOR.

*Buceros buccinator*, Temm. Pl. Col. 1830, p. 284; Gurney, Ibis, 1864, p. 133<sup>1</sup>; Kirk, Ibis, 1864, p. 326<sup>2</sup>; F. & H. Vög. Ostaftr. p. 484; Sharpe, ed. Layard's B. S. Afr. p. 125<sup>3</sup>; Bocage, Orn. Angola, p. 540<sup>4</sup>; Dubois, Bull. Mus. Belg. iii. 1884, p. 200; Fisch. J. f. O. 1885, p. 126<sup>5</sup>.

*Bycanistes buccinator*, Cab. Mus. Hein. ii. p. 171; id. V. d. Decken's Reis. iii. p. 38<sup>6</sup>; Elliot, Monogr. Bucerot. pl. 27; Shelley, P. Z. S. 1881, p. 591<sup>7</sup>.

*Hab.* East Africa south of the equator to Natal, Kingwilliamstown, the Knysna in Cape Colony and northwards to Angola.

Wito, Pangani, Usaramo, Nguraberg, Lindi (*Fischer*<sup>5</sup>); Kisuni (*V. d. Decken*<sup>6</sup>); Melinda and Usambara Mountains (*Kirk*<sup>7</sup>); Shupanga in Zambesi region (*Kirk*<sup>2</sup>, *Brit. Mus.*); Natal (*Ayres*<sup>1</sup>); Kingwilliamstown (*Trevelyan*, *Brit. Mus.*); Knysna (*Victorin*<sup>3</sup>); Talla Magongo, in Angola (*Schutt*<sup>4</sup>).

#### 7. BUCEROS FISTULATOR.

*Buceros fistulator*, Cass. Pr. Ac. Philad. 1850, p. 68<sup>1</sup>; Hartl.

Orn. W.-Afr. p. 162<sup>2</sup> (part., nec Gaboon); id. J. f. O. 1861, p. 261<sup>3</sup> (part.); Ussher, Ibis, 1874, p. 51<sup>4</sup>; Dubois, Bull. Mus. Belg. iii. 1884, p. 203 (part.); Büttikofer, Notes Leyden Mus. iv. 1885, p. 206<sup>5</sup>; Hartert, J. f. O. 1886, p. 596<sup>6</sup>.

*Pholidophalus fistulator*, Elliot, Monogr. Bucerot. pl. 32; Rochebrune, Faun. Sénégalamb., Ois. p. 119<sup>7</sup>.

*Hab.* West Africa, from the Niger to Senegambia.

Loko and Iddah on the Niger (*Hartert*<sup>6</sup>); Dabocrom (*Pel*<sup>2</sup>); Gold Coast (*Ussher*<sup>4</sup>); Liberia (*Büttikofer*<sup>5</sup>); St. Paul's River (*McDowell*<sup>1</sup>); Sierra Leone (*Linnier*<sup>3</sup>); Casamance, Gambia, Melacorie, and M'Bao (*Rochebrune*<sup>7</sup>).

#### 8. BUCEROS SHARPII.

*Buceros fistulator*, Cass. (nec Cass. 1850) Pr. Acad. Philad. 1859, p. 139<sup>1</sup>; Sharpe, P. Z. S. 1871, p. 134<sup>2</sup>; Reichen. J. f. O. 1877, p. 19<sup>3</sup>.

*Buceros sharpii*, Elliot, Ibis, 1873, pp. 177, 179<sup>4</sup>; Bocage, Orn. Angola, p. 114<sup>5</sup>; Oust. Bull. Nouv. Arch. Mus. Paris, 1880, p. 69<sup>6</sup>.

*Pholidophalus sharpii*, Elliot, Monogr. Bucerot. pl. 33.

*Buceros viti*, Dubois, Bull. Mus. Belg. iii. 1884, p. 204<sup>7</sup>.

*Buceros fisculator*, var., Dubois, t. c. pl. 11.

*Hab.* West Africa from Angola to the Niger.

Angola (*Hamilton*<sup>2 1</sup>, *Brit. Mus.*); Cazengo (*Hamilton*<sup>5</sup>); Viti, on the Congo (*Dubois*<sup>7</sup>); Loango Coast (*Falkenstein*<sup>3</sup>); Gaboon (*Verr.*<sup>4</sup>); Camma and Muni Rivers (*Du Chaillu*<sup>1</sup>); Ogowè River (*Marche*<sup>6</sup>, *Ansell, Brit. Mus.*); Niger (*Baikie, Brit. Mus.*).

As the specimen in the British Museum labelled Niger (*Baikie*) undoubtedly belongs to this species, I should like to have examined the specimens collected on that river by Herr Hartert (*vide supra*); but I see no reason why both the species should not occur there, as the locality where the British-Museum specimen was collected may be distant from either Loko or Iddah.

#### 9. BUCEROS SUBCYLINDRICUS.

*Buceros subcylindricus*, Selat. P. Z. S. 1870, p. 668, pl. 39; 1871, p. 489; Dubois, Bull. Mus. Belg. iii. 1884, p. 201<sup>1</sup>.

*Bycanistes subquadratus*, Cab. J. f. O. 1880, p. 350, pl. 1<sup>2</sup>; Elliot, Monogr. Bucerot. pl. 28; Bocage, Orn. Angola, p. 540<sup>2</sup>.

*Bycanistes subcylindricus*, Elliot, Monogr. Bucerot. pl. 29.

*Buceros subquadratus*, Hartl. Abhandl. nat. Ver. Bremen, viii. 1882, p. 208<sup>3</sup>.

*Hab.* Talla Mogongo, in Angola (*Schütt*<sup>2</sup>). Nyam-nyam country (*Mus. Brux.*<sup>1</sup>). Upper White Nile district (*Emin Bey*)<sup>3</sup>.

Mr. Sharpe informs me that he never saw the specimen from Bohndorff's collection which M. Dubois describes.

#### 10. BUCEROS LEUCOPYGIUS.

*Buceros leucopygius*, Dubois, Bull. Mus. Belg. iii. 1884, p. 202, pl. 10, fig. 1<sup>1</sup>.

*Pholidophalus sharpii*, Sharpe, Journ. Linn. Soc., Zool. xvii. 1884, p. 438<sup>2</sup>.

*Hab.* Semmio and Ndoruma, in the Nyam-nyam country (*Bohndorff*<sup>1 2</sup>).

Mr. Sharpe only met with one specimen in M. Bohndorff's Nyam-nyam collection, labelled "Ndoruma," which he referred to *P. sharpii*, while M. Dubois records two specimens, both from Semmio, out of the same collection.

#### 11. BUCEROS CYLINDRICUS.

*Buceros cylindricus*, Temm. Pl. Col. 1830, pl. 251. fig. 2; Hartl. Orn. W.-Afr. p. 162<sup>1</sup>; Cass. Pr. Ac. Philad. 1859, p. 139<sup>2</sup>; Ussher, Ibis, 1874, p. 51<sup>3</sup>; Dubois, Bull. Mus. Belg. iii. 1884, p. 201; Büttikofer, Notes Leyden Mus. iv. 1885, p. 206<sup>4</sup>.

*Bycanistes cylindricus*, Cab. Mus. Hein. ii. 1860, p. 173; Elliot, Monogr. Bucerot. pl. 30; Bouvier, Cat. Ois. Marche &c. 1875, p. 28<sup>5</sup>.

*Buceros casuarinus*, G. R. Gray, Ann. & Mag. Nat. Hist. viii. p. 1871, pp. 17, 437; Selater, P. Z. S. 1885, p. 851.

*Pholidophalus casuarinus*, Elliot, Monogr. Bucerot. pl. 34.

*Hab.* North Africa, Gaboon to Liberia.

Camma River (*Du Chaillu*<sup>2</sup>): Ogowè River, in Ga-



boon (*Marche*<sup>2</sup>); Ashantee (*Pel*<sup>1</sup>); Fantee, Gold Coast (*Ussher*<sup>3</sup>); Liberia (*Büttikofer*<sup>4</sup>).

## 12. BUCEROS ALBOTIBIALIS.

*Buceros albotibialis*, Reichen. J. f. O. 1877, p. 19 (no descr.)<sup>1</sup>; Cab. & Reichen. t. c. p. 103 (orig. descr.); Bocage, Orn. Angola, p. 540; Dubois, Bull. Mus. Belg. iii. 1884, p. 202.

*Bycanistes albotibialis*, Elliot, Monogr. Bucerot. pl. 31.

*Hab.* West Africa. Myambo country (*Petit, Brit. Mus.*); Loango Coast (*Falkenstein*<sup>1</sup>).

## 4. LOPHOCEROS.

1828. *Lophoceros*, Hempr. & Ehr. Symb. Type.

Phys. fol. *z* . . . . . *L. nasutus*.

1828. *Alopius*, Hempr. & Ehr. t. c.

fol. *aa* (nec *Alopus*, Schönh. 1826,

Coleoptera) . . . . . *L. erythrorhynchus*.

1831. *Tockus*, Less. Traité Orn. p. 252 *L. erythrorhynchus*.

1842. *Rhynchoceros*, Gloger, Hand- u.

Hilfsb. 1842, p. 335 . . . . . *L. melanoleucus*.

1849. *Grammicus*, Reichb. Syst. Av.

p. 49 . . . . . *L. nasutus*.

## Key to the Species.

*a.* Breast white.

*a*<sup>1</sup>. Head, neck, and upper parts black, with the exception of the second and third pairs of tail-feathers, counting from the outer ones, which are black and white or entirely white.

*a*<sup>2</sup>. Tip of the bill with no trace of red.

Lower mandible smoother, and in adults with an oblique band of black from the middle towards the base. Tail with the second and third pairs of feathers, counting from the outer rectrices, black for more than half their length . . . . . 13. *L. fasciatus*.

*b*<sup>2</sup>. Tip of the bill always more or less red.

Lower mandible rougher, and with no oblique black band. Tail with the second and third pairs of feathers, counting from the outer rectrices, entirely white in full adults, the basal portions often having some black in the less mature birds, but this black never extends over one half of the feather . . . . .

14. *L. semifasciatus*.

*b*<sup>1</sup>. Head and neck never black.

*c*<sup>2</sup>. Head and throat brown or grey.

*c*<sup>3</sup>. Bill red.

*c*<sup>4</sup>. Tail-feathers, not all tipped with white. Larger.

*c*<sup>5</sup>. With no white band down the wings.

*c*<sup>6</sup>. Larger. With no buff at the base of the bill. With two pairs of tail-feathers entirely white . . . . .

15. *L. hemprichi*.

*d*<sup>3</sup>. Smaller. With a narrow buff base to the bill. White on the tail confined to a broad terminal band on some of the feathers . . . . .

16. *L. melanoleucus*.

*d*<sup>5</sup>. With a white band down the wing, formed by the centre quills being white . . . . .

17. *L. monteiri*.

*d*<sup>4</sup>. With a white terminal band to all the tail-feathers. Smaller . . .

18. *L. camurus*.

*d*<sup>3</sup>. Bill not red, but sometimes washed with that colour in the females. Lower mandible more or less obliquely ridged. General colouring: above brown, all the wing-coverts broadly edged with buff, and the tail with a white terminal band.

*e*<sup>4</sup>. Male: bill black, with a buff patch on the upper mandible and several oblique buff ridges on the lower one.

*e*<sup>5</sup>. With no casque to the bill . . . . 19. *L. nasutus*.

*f*<sup>5</sup>. With a well-developed low casque to the bill . . . . . 20. *L. ephraim*.

- f*<sup>4</sup>. Bill buff . . . . . 21. *L. pallidirostris*.
- d*<sup>2</sup>. Throat white. Bill red or yellow.
- g*<sup>3</sup>. Above brown, wing-coverts spotted with white.
- g*<sup>4</sup>. Bill red.
- g*<sup>5</sup>. Head darker; forehead grey, like the crown. Cheek and ear-coverts more or less shaded with grey. The dark bar on the outer tail-feather nearly always very distinct . . . . . 22. *L. erythrorhynchus*.
- h*<sup>5</sup>. Head paler; a broad white forehead. Cheeks, ear-coverts, and entire under surface of the neck and body uniform white. Outer tail-feathers uniform white in one specimen, and with only a slight brown patch in the other, indicating where the bar occurs in *L. erythrorhynchus* . . . . . 23. *L. damarensis*.
- h*<sup>4</sup>. Bill yellow.
- i*<sup>5</sup>. Dark markings, when present on the fore neck and breast, confined to shaft-stripes. Bare skin round the eye grey; bare skin on the throat generally grey . . 24. *L. flavirostris*.
- j*<sup>5</sup>. Dark markings on the fore neck and breast always present and confined to the edges of the feathers. Bare skin of the head and throat yellow, with no shade of grey.
- j*<sup>4</sup>. The white on the two pairs of outer tail-feathers partially crossed by an imperfect dark band, very much narrower than the white ends to these feathers. The outer feather always with a largish dark basal portion . . . . . 25. *L. leucomelas*.
- k*<sup>5</sup>. The white on the three pairs of outer tail-feathers crossed by an even broad dark band, not narrower than the white ends to these feathers. The

outer feather with a brown  
basal spot surrounded by  
white ..... 26. *L. elegans*.

13. General colouring of upper parts black  
and white. The wing-coverts uni-  
form black, with the exception of a  
few of the centre greater coverts,  
which are white, like some of the  
centre quills, and together form a  
white band down the wing ..... 27. *L. deckeni*.

b. Breast dusky black, slightly paler than the  
head and upper part ..... 28. *L. hartlaubi*.

### 13. LOPHOCEROS FASCIATUS.

*Le Calao longibande*, Levaill. Ois. Afr. v. p. 115, pl. 233  
(1806).

*Buceros fasciatus*, Shaw, Gen. Zool. viii. 1811, p. 34;  
Cranch in Tuckey's Exped. River Zaire, App. 4, p. 407<sup>1</sup>;  
Jard. Ann. Nat. Hist. xvii. p. 85<sup>2</sup>; Hartl. Orn. W.-Afr.  
pp. 163, 274<sup>3</sup> (part., nec Casamanse); Reichen. J. f. O. 1877,  
p. 18<sup>4</sup>; Dubois, Bull. Mus. Belg. iii. 1884, p. 214 (part.).

*Tockus fasciatus*, Bp. Consp. Av. i. p. 98; Cass. Pr. Ac.  
Philad. 1859, p. 140<sup>5</sup>; Bocage, Orn. Angola, p. 123<sup>6</sup>; Elliot  
Monogr. Bucerot. pl. 50, upper figure; Sharpe, Journ. Linn.  
Soc., Zool. xvii. 1884, p. 435<sup>7</sup>.

*Buceros semifasciatus*, Hartl. Orn. W.-Afr. p. 163<sup>8</sup> (part.,  
Gaboon).

*Hab.* Angola to Gaboon, and North-eastwards to Equatorial Africa.

Angola (*Mus. Lugd.*<sup>6</sup>); Congo (*Tuckey*<sup>1</sup>); Loango Coast  
(*Falkenstein*<sup>4</sup>); Gaboon (*Verreaux*<sup>3</sup>); Camma, Ogowè, Moonda  
rivers, and Cape Lopez<sup>3</sup> (*Duchaillu*<sup>5</sup>); ? Old Calabar<sup>2</sup> (*teste*  
*Jardine*); Semmio and Ndoruma in Nyam-nyam (*Bohn-*  
*dorff*<sup>7</sup>); Kubbi and Tingasi (*Emin Bey, Brit. Mus.*).

Dr. Rochebrune claims to have met with this species in  
Senegambia.

### 14. LOPHOCEROS SEMIFASCIATUS.

*Buceros melanoleucus*, Vieill. (nec Licht.) N. D. iv. 1816,  
p. 595.

*Buceros semifasciatus*, Hartl. J. f. O. 1855, pp. 356, 361<sup>1</sup>; id. Orn. W.-Afr. p. 163<sup>2</sup> (part.); Büttikofer, Notes Leyden Mus. iv. 1885, p. 208<sup>3</sup>.

*Buceros fasciatus*, Hartl. Orn. W.-Afr. p. 163<sup>4</sup> (part., Casamanse); Gurney, Ibis, 1859, p. 153<sup>5</sup>.

*Tockus semifasciatus*, Sharpe, Ibis, 1869, p. 192<sup>6</sup>; Reichen. J. f. O. 1875, p. 13; Elliot, Monogr. Buccrot. pl. 50, lower figure; Shelley, Ibis, 1883, p. 558<sup>7</sup>; Rochebrune, Faun. Sénégalamb. p. 120<sup>8</sup>; Hartert, J. f. O. 1886, p. 595<sup>9</sup>.

*Hab.* W. Africa. From the Niger to Senegambia.

Shongo (*Forbes*<sup>7</sup>); Iddah (*Hartert*<sup>9</sup>) on the Niger; Ibadan (*Hinderer*<sup>5</sup>); Gold Coast and Rio Boutry (*Pel*<sup>1</sup>); Accra (*Haynes*); Fantee (*Ussher*<sup>6</sup>); Liberia (*Büttikofer*<sup>3</sup>); Gambia (*Moloney*); Casamanse, Gambia, Senegambia (*Rochebrune*<sup>8</sup>).

## 15. LOPHOCEROS HEMPRICHI.

*Lophoceros hemprichii*, Ehr. in Hempr. & Ehr. Symb. Phys. 1828, fol. *a a*, note.

*Buceros limbatus*, Rüpp. N. W. p. 5, pl. 2. fig. 1<sup>1</sup>; Finsch, Trans. Zool. Soc. vii. 1870, p. 279<sup>2</sup>.

*Tokus limbatus*, Rüpp. Syst. Uebers. p. 79.

? *Buceros coronatus*, Des Murs (nec Shaw) in Lefebvr. Voy. Abyss. 1854, p. 127.

*Buceros hemprichi*, Finsch, Trans. Zool. Soc. vii. 1870, p. 317; Heugl. Orn. N.O.-Afr. pp. 724, elv<sup>3</sup>.

*Tockus hemprichii*, Blanf. Geol. & Zool. Abyss. p. 326<sup>4</sup>; Antin. & Salvad. Ann. Mus. Civ. Gen. 1873, p. 417<sup>5</sup>; Elliot, Monogr. Buccrot. pl. 52; Salvad. Ann. Mus. Civ. Gen. 1884, p. 103<sup>6</sup>.

*Alopius hemprichii*, Dubois, Bull. Mus. Belg. iii. 1884, p. 215.

*Hab.* N.E. Africa.

“A mountain species—Dega region of Abyssinia, from 5000 to 11,000 feet. If I remember rightly, I have received it from the Upper White Nile and from Kordofan” (*Heuglin*<sup>3</sup>). Senafé (*Jesse*<sup>2</sup>); in Bogos from Sciotel, Keren, Deghi, Ossa (*Antinori* & *Beccari*<sup>5</sup>); Anseba valley (*Blanford*<sup>4</sup>); Letmarafia, Mahaluonz, and Amba karra in Shoa (*Antinori*<sup>6</sup>).



16. *LOPHOCEROS MELANOLEUCUS*.

*Buceros melanoleucus*, Licht. Cat. Rer. Nat. Rar. 1793, p. 8<sup>1</sup>; F. & H. Vog. Ostaf. p. 485<sup>2</sup>; Heugl. Orn. N.O.-Afr. pp. 720, clv<sup>3</sup>; Fisch. & Reichen. J. f. O. 1879, p. 343<sup>4</sup>, 1880, p. 141<sup>5</sup>; Böhm, J. f. O. 1883, p. 168<sup>6</sup>; Dubois, Bull. Mus. Belg. iii. 1884, p. 214; Shelley, P. Z. S. 1885, p. 224<sup>7</sup>; Dubois, Bull. Mus. Belg. iv. 1886, p. 147<sup>8</sup>.

*Le Calao couronné*, Levaill. Ois. Afr. v. 1806, p. 117, pls. 234, 235.

*Buceros coronatus*, Shaw, Gen. Zool. viii. 1811, p. 35; ? Swains. B. W. Afr. ii. p. 257.

*Tockus melanoleucus*, Bp. Consp. Av. 1850, p. 91<sup>9</sup>; Hartl. J. f. O. 1861, p. 261<sup>10</sup>; Gurney, Ibis, 1862, p. 157<sup>11</sup>; Selat. P. Z. S. 1864, p. 111<sup>12</sup>; Kirk, Ibis, 1864, p. 327<sup>13</sup>; Sharpe, P. Z. S. 1870, p. 149<sup>14</sup>; id. Cat. Afr. B. p. 9<sup>15</sup>; Gurney ed. Anderss. B. Damara Land, p. 208<sup>16</sup>; Reichen. J. f. O. 1875, p. 12<sup>17</sup>; Nicholson, P. Z. S. 1878, p. 358<sup>18</sup>; Bocage, Orn. Angola, p. 116<sup>19</sup>; Sharpe, ed. Layard's B. S. Afr. p. 127<sup>20</sup>; Elliot, Monogr. Bucerot. pl. 49; Shelley, P. Z. S. 1881, p. 519<sup>21</sup>; Rochebrune, Faun. Sénégalamb. p. 119<sup>22</sup>.

*Toccus coronatus*, Bodd. Gurney, Ibis, 1861, p. 133.

*Lophoceros melanoleucus*, Cab. in V. d. Decken's Reis. iii. 1869, p. 37<sup>23</sup>; id. J. f. O. 1878, p. 235<sup>24</sup>; Schalow, J. f. O. 1883, p. 348<sup>25</sup>; Fisch. J. f. O. 1885, p. 126.

*Hab.* The whole of Africa south of about 5° N. lat.

E. Africa: Usaramo (*Speke*<sup>2</sup>); Usanga and Mbaromu (*V. d. Decken*<sup>23</sup>); Kilimanjaro (*H. H. Johnston*<sup>7</sup>); Ndi (*Hildebrandt*<sup>21</sup>); Pangani River, Usambara (*Kirk*<sup>21</sup>); Mombas (*Wakefield, Brit. Mus.*); Mugonga<sup>25</sup> and Kium (*Böhm*<sup>6</sup>); Tanganika (*Storms*<sup>4</sup>); Mambrui (*Fischer*<sup>4</sup>); Wito, Pangani, Usegua, Bagamoyo<sup>5</sup>, and Lindi (*Fischer*<sup>26</sup>); Zanzibar (*Bojer*<sup>10</sup>, *Kirk*<sup>12</sup>); Dar-es-Salaam (*E. C. Buxton*<sup>14</sup>); Mosambique (*Peters*<sup>2</sup>).

S. Africa: Shiré in Zambesi district (*Kirk*<sup>13</sup>); Natal (*Ayres*<sup>11</sup>); Caffraria (*Licht.*<sup>1</sup>); Elands Post (*Atmore*<sup>15</sup>); Gencivafontein and Knysna (*Layard*<sup>20</sup>); Damara (*Chapman*<sup>20</sup>); Ovampo (*Andersson*<sup>16</sup>); Cunene River and Caconda in Mosamedes and Humbe and Biballa in Benguela (*Anchieta*<sup>19</sup>).

W. Africa: Pungo Ondongo and Ambaka (*Anchieta*<sup>15 19</sup>); Galungo-alto (*Welwitsch*<sup>19</sup>, Brit. Mus.); Rio Dande (*Sala*<sup>19</sup>, Brit. Mus.); Camaroons (*Reichenow*<sup>17</sup>). Interior of Senegambia (*Rochebrune*<sup>22</sup>).

#### 17. LOPHOCEROS MONTEIRI.

*Tockus monteiri*, Hartl. P. Z. S. 1865, p. 87, pl. 5<sup>1</sup>; Gurney, ed. Anderss. B. Damara Land, p. 208<sup>2</sup>; Sharpe, ed. Layard's B. S. Afr. p. 129<sup>3</sup>; Bocage, Orn. Angola, p. 121; Elliot, Monogr. Bucerot. pl. 53.

*Alophius monteiri*, Dubois, Bull. Mus. Belg. iii. 1884, p. 219.

*Hab.* S. Afr. Damara and Benguela.

Damara (*Andersson*<sup>2</sup>); Benguela (*Monteiro*<sup>1</sup>); Katumbella (*Sala*<sup>3</sup>).

#### 18. LOPHOCEROS CAMURUS.

*Tockus camurus*, Cass. Pr. Ac. Philad. 1856, p. 319<sup>1</sup>; 1859, p. 140<sup>2</sup>; Reichen. J. f. O. 1875, p. 13<sup>3</sup>; Bouvier, Cat. Ois. Marche &c. p. 20; Bocage, Orn. Angola, p. 541<sup>4</sup>; Elliot, Monogr. Bucerot. pl. 59; Sharpe, Journ. Linn. Soc., Zool. xvii. 1884, p. 436<sup>5</sup>.

*Buceros pulchrirostris*, Schl. Ned. Tijdschr. Dierk. i. 1862, p. 74, pl. 4<sup>6</sup>.

*Tockus pulchrirostris*, Sharpe, Ibis, 1870, p. 485<sup>7</sup>; id. P. Z. S. 1871, p. 604<sup>8</sup>.

*Buceros camurus*, Reichen. J. f. O. 1877, p. 18<sup>9</sup>; Büttikofer, Notes Leyden Mus. iv. 1885, p. 210<sup>10</sup>.

*Alophius camurus*, Dubois, Bull. Mus. Belg. iii. 1884, p. 220.

*Hab.* W. and Central Africa: from the Loango Coast to Liberia and to the Nyam-nyam country in North-east Equatorial Africa.

North bank of the Congo (*Spencer Shield*, Brit. Mus.); Loango Coast (*Falkenstein*<sup>9</sup>); Elobe, in Gaboon (*Ansell*, Brit. Mus.); Gaboon (*Walker*, Brit. Mus.); Camma River and Cape Lopez (*Duchailu*<sup>2</sup>); Camaroons (*Crossley*<sup>8</sup> & *Reichenow*<sup>3</sup>); Volta River and Fantec (*Ussher*<sup>7</sup>); Liberia (*Büttikofer*<sup>10</sup>); Sassa in Nyam-nyam (*Bohndorff*<sup>5</sup>, Brit. Mus.).

## 19. LOPHOCEROS NASUTUS.

*Buceros nasutus*, Linn. S. N. i. 1766, p. 154 (Senegambia)<sup>1</sup>; Hartl. Orn. W.-Afr. p. 164<sup>2</sup>; F. & H. Vög. Ostaf. p. 486<sup>3</sup>; Finsch, Trans. Z. S. vii. p. 277<sup>4</sup>; Heugl. Orn. N.O.-Afr. pp. 723, clv<sup>5</sup>; Fisch. & Reichen. J. f. O. 1878, p. 254<sup>6</sup>; Hartl. Abhandl. nat. Ver. Brem. vii. 1881, p. 111<sup>7</sup>; Böhm, J. f. O. 1883, p. 169<sup>8</sup>; Dubois, Bull. Mus. Belg. iii. 1884, p. 212 (part.).

*Le Calao nasique*, Levaill. Ois. Afr. v. 1806, pl. 236.

*Lophoceros forskalii*, Hempr. & Ehr. Symb. Phys. Av. 1828, fol. z, note, ♂.

*Lophoceros hemileucus*, Hempr. & Ehr. t. c. fol. a a, note, ♀.

*Buceros hastatus*, Cuv. Règne An. i. 1829, p. 446, note.

*Buceros pæcilorhynchus*, Lafresn. Rev. Zool. 1839, p. 257; Hartl. Orn. W.-Afr. p. 164.

*Tockus nasutus*, Rüpp. Syst. Uebers. 1845, p. 79; Hartl. J. f. O. 1861, p. 261<sup>9</sup>; Blanf. Geol. & Zool. Abyss. p. 329<sup>10</sup>; Shelley & Buckley, Ibis, 1872, p. 286<sup>11</sup>; Salvad. Ann. Mus. Civ. Gen. 1873, p. 418<sup>12</sup>; Bouvier, Cat. Marche &c. 1875, p. 27<sup>13</sup>; Hartert, J. f. O. 1886, p. 596<sup>14</sup>.

*Buceros nasutus*, vars. *senegalensis* et *orientalis*, Sundev. Æfv. k. Vet.-Ak. Förh. 1850, pp. 108, 130.

*Lophoceros nasutus*, Cab. J. f. O. 1878, p. 236<sup>15</sup>; Schalow, J. f. O. 1883, p. 348<sup>16</sup>; Dubois, Bull. Mus. Belg. iii. 1884, p. 212 (part., nec S. Afr.); Salvad. Ann. Mus. Civ. Gen. 1884, p. 103<sup>17</sup>; Rochebrune, Faun. Sénégalamb., Ois. p. 119<sup>18</sup>; Fischer, J. f. O. 1885, p. 126<sup>19</sup>.

*Tockus pæcilorhynchus*, Hartl. J. f. O. 1861, p. 261<sup>20</sup>.

*Hab.* Southern Taka and Nubia, northward to 17° or 18° N. lat.; Sennaar, Kordofan, and the whole of Abyssinia with the exception of the high mountainous regions; the districts of Sobat, White Nile, Gazelle River eastward to the Kosanga. The coast regions of Samhar, in Danakil, Somali and S. Arabia (*Heuglin*<sup>5</sup>). Ain and Mohaber (*Jesse*<sup>4</sup>); Keren and Anseba Valley (*Antinori* & *Beccari*<sup>12</sup>); Koomayli and Lebka Valley (*Blanford*<sup>10</sup>); Shoa (*Antinori*<sup>17</sup>); Lado (*Emin Pacha*<sup>7</sup>); Usaramo (*Speke*<sup>3</sup>); Rabai, near Mombas in Wanikaland (*Fischer*<sup>6</sup>); Duruma (*Hildebrandt*<sup>15</sup>); Kakoma (*Böhm*<sup>8 16</sup>).

On the West Coast: Camma River (*Duchaillu*<sup>9</sup>) in Gaboon; Niger<sup>14</sup> (*Baikie, Brit. Mus.*); Quaminfio, near Acera (*Shelley*<sup>11</sup>); Gold Coast; Bissao and Casamanse (*Verreaux*<sup>3</sup>); Gambia (*Moloney*); Senegambia (*Rochebrune*<sup>13 18</sup>).

## 20. LOPHOCEROS EPIRHINUS.

*Buceros nasutus*, var. *caffer*, Sundev. Öfv. k. Vet.-Ak. Förh. 1850, p. 108<sup>1</sup>.

*Buceros epirhinus*, Sundev. *l. s. c.*

*Tockus pæcilorhynchus*, Kirk (nec Lafr.), Ibis, 1864, p. 327<sup>2</sup>.

*Buceros nasutus*, Ayres (nec Linn.), Ibis, 1871, p. 260, 1879, p. 285<sup>3</sup>.

*Tockus nasutus*, Gurney, ed. Anderss. B. Damara Land, p. 206<sup>4</sup>; T. E. Buckley, Ibis, 1874, p. 365<sup>5</sup>; Bocage, Orn. Angola, p. 118<sup>6</sup>; Sharpe, App. Oates's Matabele Land, p. 304<sup>7</sup>; id. ed. Layard's B. S. Afr. pp. 133, 808<sup>8</sup>.

*Lophoceros nasutus*, Elliot, Monogr. Bucerot. pl. 47 (part.).

*Hab.* S. Africa.

Shiré Valley in the Zambesi district (*Kirk*<sup>2</sup>); Kanye, Matabele (*Exton*<sup>3</sup>, *Brit. Mus.*); Matloutsi River (*Oates*<sup>7</sup>, *Brit. Mus.*); Bamangwato (*T. E. Buckley*<sup>5</sup>); Oliphant's Nek (*Barratt*<sup>8</sup>); Rustenberg, Magaliesberg, Potchefstroom, Limpopo (*Ayres*<sup>3</sup>); Damara Land and Lake Ngami (*Andersson*<sup>4</sup>); Huilla in Mossamedes (*Anchieta*<sup>6</sup>).

## 21. LOPHOCEROS PALLIDIROSTRIS.

*Buceros pallidirostris*, F. & H. Vög. Ostaf. p. 871<sup>1</sup>.

*Tockus pallidirostris*, Bocage, Orn. Angola, p. 117<sup>2</sup>.

*Buceros nasutus*, var. *dubia*, Dubois, Bull. Mus. Belg. iii. 1884, p. 213, pl. x. fig. 2<sup>3</sup>.

*Hab.* Caconda<sup>1 2</sup>, in Benguela (*Anchieta*); Lake Tanganyika<sup>3</sup> (*Storms*).

In the original description of this species it was unfortunately compared with *L. melanoleucus*, with which it has very slight affinity. The type described was a Caconda specimen, and a similar specimen from the same locality has been presented to me by Prof. Barboza du Bocage. On

comparing my specimen with the description and figure of the head of *Buceros nasutus*, var. *dubia*, Dubois, I find the two names undoubtedly apply to the same species.

## 22. LOPHOCEROS ERYTHORHYNCHUS.

*Le Calao Toc*, Levaill. Ois. Afr. v. 1806, p. 122, pl. 238.

*Buceros nasutus*, Vicill. (nec Linn.) Enc. Méth. i. 1823, p. 305, pl. 10. fig. 3.

*Buceros erythrorhynchus*, Temm. Pl. Col. ii. 1824, *Buceros*, sp. 19, text; Hartl. Orn. W.-Afr. p. 165<sup>1</sup>; Ayres, Ibis, 1869, p. 296<sup>2</sup>; F. & H. Vög. Ostaf. p. 491<sup>3</sup>; Finsch, Tr. Z. S. vii. p. 278<sup>4</sup>; Heugl. Orn. N.O.-Afr. pp. 727, clv<sup>5</sup>; Hartl. Abhandl. nat. Ver. Brem. vii. 1881, p. 112<sup>6</sup>; Böhm, J. f. O. 1883, p. 169<sup>7</sup>.

*Alopius erythrorhynchus*, var. *leucopareus*, Hempr. & Ehr. Symb. Phys. 1828, fol. *a a*, note 1.

*Tockus erythrorhynchus*, Less. Traité Orn. 1831, p. 252; Rüpp. Syst. Uebers. p. 79; Kirk, Ibis, 1864, p. 327<sup>8</sup>; Sharpe, Ibis, 1867, p. 192<sup>9</sup>; Blanf. Geol. & Zool. Abyss. p. 328<sup>10</sup>; Sharpe, Cat. Afr. B. 1871, p. 9<sup>11</sup>; Gurney, ed. Anderss. B. Damara Land, p. 211<sup>12</sup>; Antin. & Salvad. Ann. Mus. Civ. Gen. 1873, p. 417<sup>13</sup>; Buckley, Ibis, 1874, p. 365<sup>14</sup>; Bouvier, Cat. Marche &c. 1875, p. 27<sup>15</sup>; Bocage, Orn. Angola, p. 120<sup>16</sup>; Elliot, Monogr. Bucerot. pl. 56; Sharpe, ed. Layard's B. S. Afr. p. 131<sup>17</sup>; id. Journ. Linn. Soc., Zool. xvii. 1884, p. 435<sup>18</sup>; Salvad. Ann. Mus. Civ. Gen. 1884, pp. 103, 262<sup>19</sup>; Rochebrune, Faun. Sénégal, Ois. p. 121<sup>20</sup>; Ayres, Ibis, 1886, p. 289<sup>21</sup>; Hartert, J. f. O. 1886, p. 596<sup>22</sup>.

*Buceros rufirostris*, Sundev. Œfv. k. Vet.-Ak. Förh. 1850, p. 50.

*Rhynchaceros erythrorhynchus*, Cab. Mus. Hein. ii. 1860, p. 166; id. J. f. O. 1878, p. 235<sup>23</sup>; Schalow, J. f. O. 1883, p. 348<sup>24</sup>; Fisch. Zeitschr. ges. Orn. 1884, p. 362; id. J. f. O. 1885, p. 126<sup>25</sup>.

*Alopius erythrorhynchus*, Dubois, Bull. Mus. Belg. iii. 1884, p. 218.

*Hab.* The whole of Africa south of about 17° N. lat.

Southern Taka and Nubia south of about 17° or 18° N. lat. :



Sennaar, Kordofan, and the whole of Abyssinia, with the exception of the high mountain regions. Sobat, White Nile, Gazelle River westward to the Kosanga. The coast-lands of Samhar, in Danakil, Somali Land, and South Arabia (*Heuglin*<sup>5</sup>); Rayrayguddy (*Jesse*<sup>4</sup>); Keren (*Antinori & Beccari*<sup>13</sup>); Mayen, at 3500 feet; Senafé, Samhar, Lebka Valley, and Anseba River (*Blanford*<sup>10</sup>); Shoa (*Antinori*<sup>10</sup>); Efat, in Shoa (*Harris, Brit. Mus.*); Lado (*Emin Pacha*<sup>6</sup>); Dembo, in Nyamnyam (*Bohndorff*<sup>11</sup>); Usaramo, Nguruman, Mossiro (*Fischer*<sup>25</sup>); Taita (*Hildebrandt*<sup>23</sup>); Kakoma (*Böhm*<sup>7 24</sup>). S. Africa: Zambesi (*Kirk*<sup>7</sup>); Tette (*Kirk, Brit. Mus.*); Matabele and Bamaungwato (*T. E. Buckley*<sup>14</sup>); Mashoona (*Ayres*); Transvaal (*Ayres*<sup>2 21</sup>); Knysna (*Victorin*<sup>17</sup>). Lake Ngami, Okavango River, and Ondonga in Ovampo-land (*Andersson*<sup>12</sup>); Cunene River, Huilla, and Capangombe in Mossamedes (*Anchieta*<sup>16</sup>). In W. Africa: Cabinda, N. of the Congo (*Anchieta*<sup>16</sup>); Abhor (*Thomson*<sup>1</sup>) and Gora on the Niger (*Hartert*<sup>22</sup>); Gold Coast, Fantee (*Ussher*<sup>9</sup>); Rio Boutry (*Pel*); Senegambia<sup>15</sup> (*Rochebrune*<sup>20</sup>); Casamanse (*Verreaux*).

### 23. LOPHOCEROS DAMARENSIS, sp. n.

? *Buceros erythrorhynchus*, Sundev. (nec Temm.).

*Tockus erythrorhynchus*, Gurney, ed. Anderss. Damara Ld. p. 211 (part., Damara).

The only specimens of this species which I believe to be known are two males in the British Museum, labelled respectively Objimbinque and Schmelen's Hope (*Andersson*).

Mr. Andersson, in writing about *L. erythrorhynchus*, perfectly recognized this form, which he well described. He observes:—"I have also met with it in Damara Land proper, at Objimbinque and Schmelen's Hope; but specimens from these two last-named localities differ considerably from those found in more northern parts." As to its being a sexual or seasonal plumage, this is disproved by the very large series of *L. erythrorhynchus* I have examined from nearly all parts of Africa. The white forehead is, perhaps, its strongest specific mark; and as Prof. Sundevall appears to have taken this as typical *L. erythrorhynchus*, and re-named the really

typical greyer-checked race as his *B. rufigrostris*, I have proposed a new name for the Damara bird.

#### 24. LOPHOCEROS FLAVIROSTRIS.

*Buceros flavirostris*, Rüpp. N. W. 1835, p. 6, pl. 2; Speke, Ibis, 1860, p. 244<sup>1</sup>; Finsch, Tr. Z. S. vii. p. 278<sup>2</sup>; F. & H. Vög. Ostaf. p. 490; Heugl. Orn. N.O.-Afr. pp. 725, clv<sup>3</sup>.

*Tockus flavirostris*, Rüpp. Syst. Uebers. 1845, p. 79<sup>4</sup>; Blanf. Geol. & Zool. Abyss. p. 327<sup>5</sup>; Elliot, Monogr. Bucerot. part., N.E. Afr., nec pl. 51; Salvad. Ann. Mus. Civ. Gen. 1884, pp. 104, 262<sup>6</sup>.

*Rhynchaceros flavirostris*, Cab. J. f. O. 1878, p. 235<sup>7</sup>.

*Hab.* Confined to E. Africa, between about 15° N. lat. and 5 S. lat.

From the hot valleys of Schoho-land this bird extends to the Bay of Adulis and to Samhar; also collected near Moiet Schahadi below Mekulu, but not on the coast-region itself (*Heuglin*<sup>3</sup>); Kordofan, Nubia, Abyssinia (*Rüppell*<sup>1</sup>); Undel Well and Rayrayguddy (*Jesse*<sup>2</sup>); Abyssinia, from 2500 to 3000 feet in January and February, and from 7000 to 8000 feet in May and June; about Senafé (*Blanford*<sup>5</sup>); Shoa (*Antinori*<sup>6</sup>); Efat in Shoa (*Harris, Brit. Mus.*); Somali (*Speke*<sup>1</sup>); Ndi in Taita (*Hildebrandt*<sup>7</sup>, *Brit. Mus.*).

#### 25. LOPHOCEROS LEUCOMELAS.

*Buceros leucomelas*, Licht. Verz. Säugeth. u. Vög. 1842, p. 17<sup>1</sup>.

*Buceros flavirostris*, Ayres (nec Rüpp.), Ibis, 1871, p. 260<sup>2</sup>; 1879, p. 295<sup>3</sup>.

*Tockus flavirostris*, Sharpe, Cat. Afr. B. p. 9<sup>4</sup> (part., S. Afr.); Gurney, ed. Anderss. B. Damara Ld. p. 210<sup>5</sup>; Buckley, Ibis, 1874, p. 365<sup>6</sup>; Shelley, Ibis, 1875, p. 82<sup>7</sup>; Sharpe in Oates's Matabele Land, p. 304<sup>8</sup>; id. ed. Layard's B. S. Afr. pp. 130, 808<sup>9</sup>; Elliot, Monogr. Bucerot. part., nec pl. 51; Shelley, Ibis, 1882, p. 245<sup>10</sup>.

*Hab.* Confined to S. Africa.

Kanye in Matabele (*Exton*<sup>9</sup>); Mashoona-land (*Ayres*<sup>10</sup>). Common from the north of Transvaal through Bamangwato (*T. E. Buckley*<sup>6</sup>); Motloutsi and Crocodile River (*Oates*<sup>8</sup>);

Transvaal (*Ayres*<sup>2 3</sup>); Umgeni River in Natal (*Shelley*<sup>7</sup>); Kuruman (*Exton*<sup>9</sup>); Gt. Namaqua<sup>4</sup> and Damara (*Andersson*<sup>5</sup>). Caffraria (*Lichtenstein*<sup>1</sup>).

Dr. Reichenow, at my request, has most kindly examined the type of *Buceros leucomelas*, Licht., and informs me, with other notes, that the bill is yellow, and that the dark portions of the feathers of the lower throat and front of the breast are confined to their sides, and are not shaft-stripes. This, together with the locality, "Caffraria" or Natal, decides conclusively that this species is the true *Buceros leucomelas*, Licht.

## 26. LOPHOCEROS ELEGANS.

*Toccus elegans*, Hartl. P. Z. S. 1865, p. 86, pl. 4<sup>1</sup>.

*Tockus flavirostris*, Sharpe, Cat. Afr. B. p. 9<sup>2</sup> (part.); Bocage, Orn. Angola, p. 119<sup>3</sup>; Elliot, Monogr. Bucerot. pl. 51 (part., Benguela).

*Hab.* Confined to S.W. Africa.

Moconja, Capangombe, Huilla (*Anchieta*<sup>3</sup>) in Mossamedes; Benguela (*Monteiro*<sup>1</sup>, *Brit. Mus.*). Galungo and Loanda (*Sala*<sup>2</sup>, *Brit. Mus.*).

I would remark that the occurrence of this species in Angola is not absolutely certain, as I believe when Sala's specimens were received that gentleman had been collecting in Mossamedes. It would appear to me more natural that this should be a very local and purely S. African form, being allied to *L. leucomelas* about as closely as *L. damarensis* is to *L. erythrorhynchus*. Both of these I consider to be only just separable as species.

## 27. LOPHOCEROS DECKENI.

*Buceros (Rhynchaceros) deckeni*, Cab. V. d. Decken's Reisen, iii. 1869, p. 36, pl. 6.

*Buceros deckeni*, F. & H. Vög. Ostaf. p. 489; Böhm, J. f. O. 1883, p. 170<sup>1</sup>.

*Rhynchaceros deckeni*, Cab. J. f. O. 1870, pl. 1; 1878, p. 235<sup>2</sup>; Fisch. Zeitschr. ges. Orn. 1884, p. 362<sup>3</sup>; id. J. f. O. 1885, p. 126<sup>4</sup>; Reichen. J. f. O. 1887, p. 60<sup>5</sup>.

*Tockus deckeni*, Elliot, Monogr. Bucerot. pl. 57.

*Tockus bocagei*, Oust. Bull. Soc. Phil. Paris, 1881, p. 161<sup>6</sup>; Rochebrune, Faun. Sénégalamb., Ois. p. 121, pl. 13<sup>7</sup>.

*Alopius deckeni*, Dubois, Bull. Mus. Belg. iii. 1884, p. 217.

*Hab.* Near the confines of Galla and Somali (*M. Abdon Gindi*<sup>6</sup>); Brava (*Fischer*<sup>4</sup>); south to Ugogo (*Böhm*<sup>1</sup>), and west to the inland forests of Senegambia (*Dr. Cohn*<sup>7</sup>). Also towards Masai-land, Usandawa<sup>5</sup>, Inkaramo, Nguruman and Walikaland (*Fischer*<sup>4</sup>), Duruma, Taita, and Ukamba (*Hildebrandt*<sup>2</sup>); Lamu (*Jackson, Brit. Mus.*).

## 28. LOPHOCEROS HARTLAUBI.

*Tockus hartlaubi*, Gould, P. Z. S. 1860, p. 340; Sharpe, Ibis, 1870, p. 485<sup>1</sup>; Elliot, Monogr. Bucerot. pl. 58.

*Buceros nagtglassi*, Schl. Neder. Tijds. Dierk. i. 1862, p. 56, pl. 2.

*Buceros hartlaubi*, Reichen. J. f. O. 1877, p. 18<sup>2</sup>; Büttikofer, Notes Leyden Mus. iv. 1885, p. 209<sup>3</sup>.

*Tockus nagtglassi*, Bocage, Orn. Angola, p. 541.

*Alopius hartlaubi*, Dubois, Bull. Mus. Belg. iii. 1884, p. 217.

*Hab.* W. Africa: Loango Coast (*Falkenstein*<sup>2</sup>); Gold Coast (*Ussher*<sup>1</sup>); Liberia (*Büttikofer*<sup>3</sup>).

## 5. BERENICORNIS.

1850. *Berenicornis*, Bp. Consp. Gen. Av. Type.

1850, p. 91 . . . . . *B. comatus*.

- a. Sides of the head black or faintly marked with white. Greater wing-coverts and quills boldly tipped with white. Casque longer, reaching over more than  $\frac{3}{4}$  length of culmen . . . . . 29. *B. albocristatus*.
- b. Sides of the head white or faintly marked with black. Greater wing-coverts and quills uniform black. Casque shorter, not reaching over  $\frac{3}{4}$  length of culmen . . . . . 30. *B. leucolophus*.

## 29. BERENICORNIS ALBOCRISTATUS.

*Buceros albocristatus*, Cass. Journ. Ac. Philad. 1850, p. 135, pl. 15<sup>1</sup>; Hartl. Orn. W.-Afr. pp. 163<sup>2</sup>, 274 (part.); Reichen. J. f. O. 1875, p. 12<sup>3</sup>; Sharpe & Bouvier, Bull. S.

Z. France, 1876, p. 310<sup>4</sup>; Reichen. J. f. O. 1877, p. 18<sup>5</sup>; Bocage, Orn. Angola, p. 540; Dubois, Bull. Mus. Belg. iii. 1884, p. 207; Büttikofer, Notes Leyden Mus. iv. 1885, p. 207<sup>6</sup>.

*Berenicornis macrourus*, Bp. Consp. Av. 1850, p. 91 (ex Temm. MS.).

*Berenicornis albocristatus*, Cass. Proc. Ac. Philad. 1859, p. 139<sup>7</sup>; Sharpe, P. Z. S. 1871, p. 604<sup>8</sup>; Bouvier, Cat. Ois. Marche &c. 1875, p. 27<sup>9</sup>.

*Anorrhinus albocristatus*, Elliot, Monogr. Bucerot. pl. 40.

*Hab.* W. Africa to the north of the Congo: Louembe and Chikambo (*Lucan* & *Petit*<sup>4</sup>); Loango Coast (*Falkenstein*<sup>5</sup>). In the Gaboon, Camma, Inuni, and Memda rivers (*Duchaillu*<sup>7</sup>), and Ogowè (*Marche*<sup>9</sup>). Camaroons (*Crossley*<sup>9</sup> & *Reichenow*<sup>3</sup>). Liberia (*Büttikofer*<sup>6</sup>); St. Paul's River (*McDowell*<sup>1 2</sup>).

### 30. BERENICORNIS LEUCOLOPHUS.

*Buceros albocristatus*, Hartl. (nec Cass.) Orn. W.-Afr. p. 163<sup>1</sup> (part.); Shelley & Buckley, Ibis, 1872, p. 286<sup>2</sup>.

*Berenicornis albocristatus*, Sharpe, Ibis, 1869, p. 385<sup>3</sup>.

*Berenicornis leucolophus*, Sharpe, Zool. Rec. 1873, p. 52<sup>4</sup>.

*Anorrhinus leucolophus*, Elliot, Monogr. Bucerot. p. 41.

*Buceros albocristatus*, var. *leucolophus*, Dubois, Bull. Mus. Belg. iii. 1884, p. 208.

*Hab.* W. Africa: confined to the Gold Coast.

Rio Boutry (*Pel*<sup>1</sup>); Abouri (*Shelley* & *Buckley*<sup>2</sup>); Fantee (*Ussher*<sup>3 4</sup>).

## IV.—On the Birds of Bhamo, Upper Burmah.

By EUGENE W. OATES, F.Z.S.

(Plate I.)

IN 1881 the taxidermist of the Phayre Museum of Rangoon was despatched to Bhamo to form a collection of birds. I had an opportunity of examining all the skins immediately on their arrival in Rangoon; but as the results were not very noteworthy, I have hitherto deferred making any systematic list of them.